

# Ending High, Starting High: Job Placement of Economics Graduates of Dhaka University

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# Ending High, Starting High: Job Placement of Economics Graduates of Dhaka University

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## Abstract

*The goal of any educational institution is to contribute in academia, research and industry through creation, generation and distribution of knowledge. Educational institutions supply graduates as skilled labor while academia and industry demand those skilled labor. Therefore, the role of both institutions is complementary and one is serving other. Unfortunately, in Bangladesh very few educational institutions as well as various departments in universities have little knowledge about the employment scenario of their graduates. So, there is a knowledge gap about identifying the factors that determine the probability of employment of graduates. This paper shows that M.S.S result, gender, mother education and family income are the most significant factors for the employability of a graduate of Economics Department of the University of Dhaka. Result shows that if M.S.S. result of an Economics graduate increases by 1 point from mean value of CGPA then the probability of employment increases by 0.52 compared to graduate with average CGPA. Negative marginal effect of gender on employability implies the presence of gender discrimination in job market in Bangladesh for these graduates. The negative coefficient of B.S.S. result shows that only undergraduate degree holders are not preferred in job market of Bangladesh as copious number of master degree holders available to hire. Moreover, the positive marginal effect of family income shows that richer families can afford better education which pays some kind of employment dividend. In addition to that the positive marginal effect of mother education implies mother plays a crucial role to build strong educational foundation during childhood and it pays off eventually.*

**Key Words:** Employment, Graduate, Job Market Placement, Probit Model

**JEL Classification:** I21, I25, J62

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## 1. Introduction

Tertiary levels of educational institutions are formed to produce graduates who will be highly trained and skilled to solve a problem systematically. The demands of these graduates are subject to market demand, latest technology, industry requirement and the phase of economic development of a country. Educational institutions are formed to serve the nation, industry and market through knowledge creation and distribution. Educational institutions are often phlegmatic to assess market condition and reluctant to adapt with technological change. Therefore, proper statistics about employment scopes, placements and potential is needed to formulate policy change of any dynamic institution. In fact, the best institutions of the world have been doing this regularly. Unfortunately, this practice is quite rare in third world countries. University of Dhaka being the premier institution of the country and Department of Economics being one of the eminent departments in the university should have proper statistics and information about their graduates, job information, employment statistics, average starting salary of the graduates etc.

The aim of our paper is to show the recent trend of our graduates in terms of demographic information especially their family income, parent's education and their financial dependence on parents or vice versa. We will also try to extract on an average how many hours our graduates devoted to their study. After graduation students need some time to prepare themselves for the labor market which is called as transition period. It is presumed that the students of best discipline require less transition time than other disciplines. We want to investigate this for economics graduates. We want to know how many hours they normally spend on studies during their transition period. Our objective is also to find the sectors and industries where our graduates get their job. In a nutshell, this study will give us some idea about the transition process of our graduates and help us to evaluate the degree of smoothness in the process of shifting academic institution to job market. It will also help us to investigate the competencies of economics graduates among thousands of graduates in the job market.

Public Universities like many other public institutions in Bangladesh where the policy makers have no idea about the accurate statistics of the placement of their graduates, employment statistics of the graduates, average starting salary of the graduates, residence information of the students, financial background of the students. Therefore, a study is needed to assess the situation and the design the appropriate policy in future. Economics being one of the oldest departments of the university also lack of this information. In this mindset, we want to illuminate the policymakers about the recent employment and job statistics of our graduates. It might help others to assess the situation of their graduates too. The broad objectives of our paper to investigate the demographic characteristics of our graduates, financial background of their family, academic concentration in terms of study hours, job placement in terms of sectors and industries, job seeking time and the severity of *job and aim* mismatch and the financial benefits of the entering graduates.

Due to per capita income increase both in monetary and real terms, the average years of schooling has also increased in the recent time. On the other hand, recent data of Bangladesh supports that unemployment is not reduced rather it is increased. Besides that, artificial

intelligence and automation has also been negatively affecting the employment scenario of the world ( (Acemoglu & Restrepo, 2018); (Vermeulen, et al., 2018)). Due to the rapid digitalization in Bangladesh, automation might displace the employment leading to further increase in unemployment. For the sake of full employment and better job matching, higher educational institutions need to conduct the study regarding the job market placement of their graduates. Although the top-ranked universities of the globe do it regularly, there are very few study regarding this matter in Bangladesh. This paper tries to fill the gap in the research arena of Bangladesh higher education. Our paper has been organized such a way that literature review follows introduction. Later, we have presented data and methodology along with descriptive analysis. The last part highlights conclusion and policy implication preceded by Results and Discussion of the study.

## 2. Literature Review

Despite various limitations, Bangladesh has maintained a reasonable level of economic growth over the last two decades. As the reward of continuous sustained economic growth, Bangladesh has recently graduated to World Bank's status of lower middle-income country. The Government of Bangladesh (GoB) has also set the goal to attain 7.4 per cent real GDP growth on average over the five year period in the 7$^{th}$ Five year plan (Planning Commision, Bangladesh, 2015). To keep this level of economic growth on track and accelerate it even further, investment in human capital is absolutely necessary and higher education system is the key player of supplying skilled labor force in the economy through human capital development. Education enables a worker to perform a specific job more efficiently and effectively, and even highly routinized job might require a certain level of education to wield the discrimination and skills (Nelson & Phelps, 1996). To build the system of higher education for human capital development, it requires a significant investment. Therefore, it is critical to assess whether economy is reaping the maximum benefit from the human capital it has already invested.

Since the fundamental objective of the higher educational institutions is to provide skilled labor force, they are basically contributing to the economy. These skilled labor force are improving the efficiency of production function and hence total production of the economy. In fact in case of Bangladesh, to achieve the status of lower middle-income country, skilled graduates from the different educational institutions have played a noteworthy role. Based on the specific training provided by these institutions, graduates of different educational institutions are hired. And hence, job market placement has been considered as the central objective of higher education (Poropat, 2011). Many studies have found positive correlation between university/department ranking and the job market placement of their graduates. A study based on Japanese labor market for the university graduates showed that higher ranked schools promote their graduates in a better placement compared to low ranked schools and even economic recession in 2007 mostly affected the graduates of lower ranked school (Rebick, 1998). Ranking of the educational institutions provides the interest of many stakeholders ranging from graduate students to university administration identifying it strengths and weakness (Schmidt & Chingos, 2007). Nevertheless, ranking of higher education is generally a reflection of quality of the educational institutions.

Although every top ranked universities of the world has the record and research of their graduates, universities of Bangladesh is perhaps reluctant about the study regarding the job market placement of their graduates. Since there is no central research from the university administration, very few universities in Bangladesh has the track of job market placement of their graduates. This might cause a hindrance regarding the quality education in Bangladesh. Although much discussion is needed for the establishment of quality education, Bangladesh government has given an immense emphasize on its education policies. Since the government has given importance on its education policies especially for quality education, it has been very crucial to assess the placement scenario of university graduates. A number of studies have been done in research arena of world to find out the job market placement record of the university passed graduates and find out that what factors are playing very significant role on employment status of the graduates. Unfortunately, such kinds of study are very rare in the research field of Bangladesh. In spite of increasing importance for the study about the available job opportunity of the graduates, a very little effort has been paid in this context. This study is a small effort which tries to find out what factors increases the likelihood of employment and earnings from that employment.

Better job market placement depends on a composite basket comprised of some factors including education, experience etcetera. The degree provided by the educational institutions functions as the main factor of signaling for the employers, since it is very costly or even sometimes impossible to explore the factors in the basket before hiring a graduate except the degree. Signaling plays a very crucial role for determining the employment status of a candidate in the job market. Spence (1973) explained the reason why signaling is necessary in his ground-breaking paper 'The job market signaling'. Coles (2010) shows the role of signaling in the job market placement of PhD students of economics departments of various ranked universities. They conducted the study based on the performances of PhD students of top ranked department in the economics discipline which include both current as well as recent graduates. Among which two-thirds students are current students. They tried to figure out the correlation between the signaling mechanism of the participated candidates and their home institutions. More specifically they tried to examine the correlation of the students of top ranked 100 economics departments. Their findings conclude a positive relationship between signaling of the graduated students and the ranking of their department. Oyer (2006) tried to establish the long run relationship between the nature and quality of candidate's first job and type and quality of the jobs that the candidate will achieve in the future. He found initial job placement of participated candidates influences the future career placement.

Internship program can be considered as one of the factors of the basket that generally works as signaling. It plays important role in the placement mechanism because employers can actually able learn and predict about the factors a graduate has. Although most of the undergrad and master's programs in the academic arena of the world require the inclusion of internship program (Gabris, 1989), most of the departments or institutions among the universities in Bangladesh do not have internship program. Inclusion of internship is considered as one of the important indicators for succession in the job market. Gabris (1989) showed inclusion of internships in the program is more helpful for succession in the career placement. Thus, intern's performance can

be considered as one of the most significant factor motivating successful job placements. They also showed inclusion of internship in the program as one of the significant educational functions. Their study found that positive correlation exists between the higher level of inspiration and career satisfaction and higher levels of placement success.

Before entering and completing the graduation, it is obvious that the prospective graduates need the continuation from the secondary level. Hence, continuation from the previous education level can also be considered as one of the factors in the basket. This continuation might be affected by so many social and economic factors. Shavit (1984, 1990) showed that scholastic aptitude is one of the major determinants of the continuation of secondary level education. Dealing with secondary level education, he also found that tracking the placement does not affect the educational continuation at the secondary level. He showed socioeconomic disadvantage of Arabs, Arab-Israel men participated greater rate than Oriental Jews. He established two explanations for this pattern at the post-secondary school. First one is separate school system of Arab. Arabs draw huge benefits from the separate system. Tracking disproportionately into vocational system of Oriental Jews at the secondary level diverts the Jews from the traditional college education system. On the other hand, traditional educational system provided them lower employment opportunity. Due to expansion of primary and secondary school system, the vocational systems are providing them greater opportunity of employments and hence earnings.

After graduation, many factors can influence the likelihood of employment for a graduate. Academic performance reflected by the grade, ranking of the university, social class, internship, recommendation etcetera are some of the factors that affect the probability of employment immediately. Smith (2000) did a study about the development of performance gauges. He promoted the concept that social class might affect the probability of career placement six months after the graduation. He also found that graduates from higher social classes have two per cent higher probability than other social classes to become to find employment six months after their graduation. Dolton (1990) provided evidences based on a survey of UK graduates that 'good' degree ensures higher starting salaries for the UK graduates. Besides good degree, courses studied in the undergrad program effect the employment status of the fresh graduates (Mirakzadeh, 2011). According to the employers of fresh graduates, soft skill plays the key factor of employability (Finch, 2013). It is very common belief that having employability skills is a key to success in the job market for fresh university graduates (Finch, 2013). On the other hand, these essential employability skills of job market have been considered very important for economic and social development (Wickramasinghe, 2010). Blasko (2002) tried to find out the factors that affect the likelihood of employment in the first 3.5 years after their graduation. They showed that male graduates with lower level of parent's quality or with the lower level of occupations of their parents have high probability to remain unemployed in the first 3.5 years after their completion of graduation. However, among female graduates with less qualified parents, the likelihood of remaining unemployed is high in managerial or professional jobs.

Naylor (2002) performed a study using the individual level data to find out the catalysts of individuals earning differences among the graduates of old universities of the United Kingdom. They found individual occupational earning differences of the graduates based on different

socio-economic characteristics. There is another finding which was found in their study. It ensures that first degree provides significant variation of earnings around the average rate of return. Blundell (2000) showed that a female student completing an undergraduate degree earn more than their male counterpart. More specifically they found that raw returns to an undergrad degree for male and female are 21 per cent and 39 per cent respectively. On the other hand, controlling socio-economic variables a male student completing an undergrad degree earns on average 17 per cent and a female earns on average 37 per cent implying that in all cases returns to an undergrad degree for female is greater than their male counterpart.

In the recent time focus has been given to the development of human capital in every country of the world. As a result, world education scenario improves compared to the previous century. Unfortunately, due to rapid increase of world population and world economic recession as well as the automation, employment scenario of the world has affected negatively (Acemoglu & Restrepo, 2018). Hence empirical research based on factors affecting employment status has received new dimension in different disciplines. Mirakzadeh (2011) determines the effective factors affecting the employment status of the graduates in agriculture discipline. This study found six factors characterized educational history, professional skills, entrepreneurship spirit, practical experience, communication skills and socioeconomic context that explain 70.03 per cent variation of graduate's employment status in agriculture discipline. It emphasizes professional skill as important indicator of graduate's employability status. Finch (2013) worked to find out the factors that affect the employability of university graduates. Composing 17 relevant factors into 5 factors, the study showed that the employers gave the highest importance on soft skills and lowest skill on academic reputation. However, an employer always emphasizes an educated and skilled workforce to secure the comparative advantage in the job market (Hitt, 2001; Lin, 2012).

## 3. Data, Variables and Methodology

### *3.1 Data and Variables*

This paper tries to explore the factors that are responsible for influencing the probability of employability using the primary data surveyed (Finch, 2013). The survey has been conducted on two batches of graduating students of Economics Department of University of Dhaka who passed from the university very recently. The chosen two batches of the survey are first batch in the semester system of the department that passed graduate program in 2011 and third batch which passed graduate program in 2013. The final data combines the aforementioned two batches. We have collected data of 72 graduates out of 109 graduates from the batch of 2011 Economics (2006-07). This is about 66.1% representation from this particular batch. Similarly, we have collected data from 68 graduates of batch of 2013 Economics (2008-09) out of 82 graduates who have completed their M.S.S. degree from department of Economics in the year 2013 of University of Dhaka. This is about 82.93% representation from this particular batch.

Employment variable serves as dependent variables of the probit model. The dependent variable contains six categories in the survey. First the graduates who are effectively searching job are

basically unemployed[3]. Second, the graduates who employed in an organization are literally employed. Third, the graduates who are working in their own organizations are also employed. Surprisingly the employed and unemployed graduates show their viewpoints about entrepreneurship that have been found significantly different from each other's (Mirakzadeh, 2011). Fourth, since the graduates who are not interested in the job searching are not the part of job market, we have dropped as the observation from the model. Fifth, the graduates who are preparing for or doing further education are considered as employed because graduation and post-graduation are considered worldwide as full-time job. The last one, the graduates who are searching job but having tutorship are basically unemployed. This six categories have merged into two categories employed and unemployed as considered the binary variable employment. Gender variable has been constructed as dummy variable considering gender as 1 when a graduate is female otherwise 0. The other variables have been described in summary table.

### *3.2 Econometric Model*

The Probit model incorporating the binary variable as the dependent variable has been wielded to explain the factors that help a graduate to be employed. The probability of changing the employment status from unemployment to employment (from 0 when unemployed to 1 when employed) is generally explained by the probit model. To explain the change in probability of dependent variable, the probit model is generally used due to some limitations of Linear Probability Model (LPM) and Logit Model. To develop the probit model, consider the following basic regression model

$$Y = \mu + \beta Z + e$$

The dichotomous dependent variable, y, indicates the employment status of Economics graduate. The selected model is designed to find out the determinants of employability. The structure of the probit model has been estimated to find out the probability of factors for employment deriving from the normal CDF (Cumulative Distribution Function) (Gujarati, 2009). One of the CDFs is logistic cumulative distribution function. It can be illustrated as

$$P = E(Y = 1|Z) = \frac{1}{1 + e^{-(\mu+\beta Z)}}$$

According to the normal CDF, the probit model (Gujarati, 2009) can be estimated as

$$P = P(Y = 1|Z) = P(N \leq \mu + \beta Z) = F(\mu + \beta Z)$$

Where Y is the dichotomous dependent variable representing 1 when a graduate is employed otherwise 0. P indicates the probability of being employed given the socio-economic variables Z (for example gender, household income, GPA of MSS exam, mother education etc.) and N is normally distributed with mean 0 and variance $\sigma^2$ i.e., $N \sim N(0, \sigma^2)$ (Gujarati, 2009). To find out the marginal effect that is the probability due to change in explanatory variables. To get the

[3] Unemployment refers to a situation where a person who is in labor force and eligible to do a job and has been actively searching for a job during a reference time period.

marginal effect we have to take derivative of the above-mentioned function. After taking derivative we get

$$\frac{dP_i}{dZ_i} = (\mu + \beta Z)\beta_i$$

where $f(\mu + \beta Z)$ is the standard normal probability density function estimated at $\mu + \beta Z$ (Gujarati, 2009) which is normally distributed with mean 0 and variance 1. To estimate the above probit model, marginal effect and all the statistical analysis, stata14 has been used.

The effects of any variable on the estimated probability P(Y|Z) is interpreted as the Marginal Effects at the Means (MEMs). Since the variables can be categorized as binary variable or discrete variable, interpretation on the estimated probability will be different based on their types. Binary variables capture the change in estimed probability from a discreete change while the the continuous variables incorporate the change in estimated likelihood of dichotomous dependent variables from a instantaenous rate of change. In case of binary dependent variables for instance, MEMs can be interpreted as the change in expected estimated probability as the change in binary independent variables from 0 to 1 or 1 to 0. The MEMs model for binary independent variable can be presented as

$$\mathrm{Z_k} = \mathrm{Pr(Y = 1|Z, Z_k = 1) - Pr(Y = 1|Z, Z_k = 0)} \ldots$$

$$\ldots\ldots\ldots\ldots \text{(MEMs for Discrete Variable)}$$

On the other hand as explained above, marginal effect shows the change in the estimated probability from an appriximate change in the continuous variable, $Z_k$, (instantaneous rate pf change). But these MEMs for continuous variables may or may not be close to the effect on P(Y=1) of a one unit increase in $Z_k$. Because change in independent variable can occur at various level. We do not expect same change in probability of employment due to change in a contiuous variable at very low level and at very high level. We have found similar non-linear relationship between probbility of employment and B.S.S. CGPA. This is also true in case of probability of employment and M.S..S. CGPA. Marginal effects are calculated as following-

$$\mathrm{Z_k = limit([Pr(Y = 1|Z, Z + \Delta Z_k) - Pr(Y = 1|Z, Z_k)]/\Delta Z_k)\ as\ \Delta Z_k\ gets\ closer\ to\ 0} \ldots$$

$$\ldots\ldots\ldots\ldots \text{(MEMs for Continuous Variable)}$$

The above equation for continuous variables explains the estimated likelihood of continuous independent variables. More specifically, the effect on estimated probability of $Z_k$ .Therefore, both theoretical and empirical methodology lead us some sort of non-linear relationship between variables (Williams, 2012; Norton, 2004). For instance, change in probability of employment due to change in CGPA from 2.00 to 3.00 will not be same when CGPA changes from 3.00 to 4.00. Therefore, both theoritically and emperically we expect a non linear relationship between the variables. ((Williams, 2012), Norton, 2004).

## 4. Results and Discussions

### *4.1 Residential Information*

Quality of residence as well as convenience of residence play an important role for student life since he/she has to commute less and can save a lot of time for study. University of Dhaka, being the premier academic institution of the country attracts many students from various districts of the country. The university has been selecting students through an admission test where subjects are being offered according to merit basis. Historically, department of economics has been admitting top ranked students. These students come from various parts of the country. Therefore, the students who do not have any residence at Dhaka stay in hall or mess or rented house or house of their relatives. Some of the students are Dhaka based living either in own house or in govt. quarter.

**Table 1: Residential Information of Economics Graduates of DU**

| Residential status of Students | Percentage |
|---|---|
| Hall | 18.57 |
| Own House | 26.43 |
| Rented House | 42.86 |
| Mess | 5.00 |
| Govt. Quarter | 4.29 |
| Others | 2.86 |

Source: Authors' calculation

Most of the students of Economics live in rented house followed by own house and hall. The percentage of students who lived in mess, govt. quarter and others are very few compared to aforementioned housing arrangements. Results signify that these students are not from Dhaka based families. Perhaps their families have migrated during school or college levels or having a financial status unable to purchase a house at Dhaka city. This also implies that most of the students of this department represents middle class families of the country.

Economics department enrolls students from all three backgrounds i.e. science, humanities or commerce that can be in case of general education during H.S.C level. Students from all medium (*Bangla* medium/*English* medium/ *Madrasa* background) can get admitted in the department (See in AppendixA-1a). Appendix A-1a shows that most of the students who participated in our study for batch of 2011 and batch of 2013 were from humanities and science background respectively during their H.S.C. level.

### *4.2 CGPA in Various Exams*

Academic performance of a student is generally reflected by his/her academic grade and it is measured by a student's Grade Point Average (GPA) or Cumulative Grade Point Average (CGPA). Average GPA/CGPA is tabled below.

**Table 2: GPA/CGPA of Economics graduates of 2011 and 2013 in various exams**

| H.S.C. Background | SSC (Out of 5.00) | HSC (Out of 5.00) | BSS (Out of 4.00) | MSS (Out of 4.00) |
|---|---|---|---|---|
| Science | 4.90 | 4.79 | 3.39 | 3.41 |
| Humanities | 4.58 | 4.81 | 3.28 | 3.38 |
| Commerce | 4.65 | 4.78 | 3.30 | 3.29 |
| **All Groups (139)** | 4.70 | 4.80 | 3.33 | 3.38 |

Source: Authors' calculation

The students who admitted in Economics had average GPA of 4.70 (out of 5.00) at S.S.C. level and average GPA of 4.80 (out of 5.00) at H.S.C. level. Among the groups, science background students had highest average GPA in S.S.C exams and humanities students had highest average GPA in H.S.C. exams. In terms of B.S.S. and M.S.S. results, the students from science background outperformed students from other backgrounds. Average CGPA in B.S.S for the students from science background was 3.39 (out of 4.00) and for the same group average CGPA in M.S.S. was 3.41 in the same scale.

The average CGPA of bachelor degree which is awarded as B.S.S. (Hon's) in Economics for our sample was 3.33 (out of 4.00). Their average CGPA in M.S.S was 3.38 (out of 4.00). Their average M.S.S. result shows slight improvement over their B.S.S. result. Average CGPA for the students of humanities background was lowest among three groups in B.S.S. exam and average CGPA for the students from commerce background was lowest among three groups in M.S.S. exam. Generally, average CGPA in M.S.S. is higher than B.S.S. for almost every batch. This may be due to the fact that either only better students enroll in M.S.S. program or students become more serious during short length M.S.S. program.

### *4.3 Academic Result by Gender*

**Table 3: Results of Economics graduates on the basis of gender**

| Gender | SSC (Out of 5) | HSC (Out of 5) | BSS (Out of 4) | MSS (Out of 4) |
|---|---|---|---|---|
| Male | 4.68 | 4.76 | 3.31 | 3.36 |
| Female | 4.73 | 4.86 | 3.35 | 3.42 |

Source: Authors' calculation

Academic results of girls are better in all exams reflecting the fact that girls outperform boys in every departmental exam. But unfortunately, females are not better placed in terms of job than male. This is perhaps due to either less career orientation among girls after their graduation or social and family constraints they usually face in job place. Besides, participating in household chores and kid management remain sole female responsibility in many developing countries of the world like Bangladesh.

Girls from science background have performed better in terms of academic results for both batches in Economics department at university of Dhaka (see in Appendix A.1b).This is due to the fact that students from science background get some advantage in economics due to their previous mathematical preparation. In terms of college location, majority of the students from both batches are Dhaka based (see in Appendix A.2).

**Table 4: Correlation Matrix for various examinations results**

| Examinations | SSC (Out of 5) | HSC (Out of 5) | BSS (Out of 4) | MSS (Out of 4) |
|---|---|---|---|---|
| SSC (Out of 5) | 1.00 | - | - | - |
| HSC (Out of 5) | 0.53 | 1.00 | - | - |
| BSS (Out of 4) | 0.28 | 0.23 | 1.00 | |
| MSS (Out of 4) | 0.23 | 0.20 | 0.76 | 1.00 |

Source: Authors' calculation

Result shows while there is a poor correlation between S.S.C. & B.S.S. result, H.S.C. & B.S.S result, S.S.C & M.S.S. result and H.S.C. & M.S.S. result, there exists a strong correlation between B.S.S & M.S.S. result. The correlation between B.S.S. and M.S.S. result is 0.76. This high correlation implies better foundation holds better building. The students who can acquire a decent understanding of economics during undergraduate level with decent CGPA can finish their Master degree with higher CGPA.

The average family size of Economics graduates are 4.72. This is a little bit higher than national average of 4.06 (BBS, 2016). Average monthly family income for Economics graduates was BDT 45,696. The average years of father and mother education are 14.04 and 11.43 years respectively. To secure an average CGPA, students spend on average 3.53 hours per day during their academic study. However, they increase their effort level to 3.71 study hours per day after graduation and before getting job.

Monthly gross income at the first appointment is considered as an indicator about the performance of the graduates of an institution. The monthly gross income at first appointment for Economics graduates is BDT 32,279. Average time to get the first job for the sample is 8.79 month. On an average, they spend BDT 4,290 on application purpose during their job entry time. Additionally, one of the very important aspects that on an average one graduate did approximately 16 applications to secure their first job. The seemingly high average application number portraits a very competitive job market. Even the most credible educated segment of the graduates of this economy face considerable level of difficulty and competition to secure a job.

We find there is no correlation between CGPA of a student and financial capability of their family. This implies better performed students can be from any financial status ranging from high income class to very low income class.

### *4.4 Class Attendance*

**Table 5: Status of class attendance among graduates**

| Regularity | Percentage |
|---|---|
| Always present | 62.69 |
| Moderately present | 32.84 |
| Often | 2.99 |
| Very low | 1.49 |

Source: Authors' calculation

Approximately two-third of the Economics graduates attended the classes on regular basis during their student life at university. On the other hand, approximately 1.5 per cent students maintained very low attendance.

### *4.5 Current Status of the Graduates*

**Table 6: Current Status of the First Batch Students**

| Current Status | **Percentage** |
|---|---|
| Searching Job (%) | 17.99 |
| Employed in an organization (%) | 64.75 |
| Engaged with own business (%) | 0.72 |
| No Interest for job Searching (%) | 1.44 |
| Attending/Preparing for further education (%) | 10.79 |
| Searching job and tutoring (any part time working) (%) | 4.32 |
| ***Average time taken to get the first job (Months)*** | ***8.79*** |

Source: Authors' calculation

The aim of every educational institution is to train their graduates with designated knowledge and supply skilled labors for the academia and industry. But many educational institutions are producing graduates without having any knowledge about what exactly their graduates are doing. Therefore, we need to know the present job status of previous graduates. Among the graduates 64.75 per cent are currently employed in various institutions. For our sample 10.79% are attending in various institutions across the world for further education. Unemployment rate for economics graduates was 22.31 per cent who have tried to get job when surveyed but failed to manage one. Average time taken to get the first job was on average approximately 8.79 months.

This high percentage of unemployment due to fact that some graduates prefer government job that usually requires much higher time. Recruiting process for this type of job is sluggish in nature. Some of the unemployed graduates are tutoring which is not actually formal employment, therefore, they are also treated as unemployed.

**Table 7: BSS & MSS Results according to Residence**

| **Resident Information** | **BSS CGPA** | **MSS CGPA** |
|---|---|---|
| Hall | 3.27 | 3.29 |
| Own House | 3.38 | 3.41 |
| Rented House | 3.33 | 3.41 |
| Mess | 3.11 | 3.25 |
| Govt. Quarters | 3.28 | 3.36 |
| Others | 3.66 | 3.73 |
| Average CGPA | 3.33 | 3.38 |
| **Sample size** | **140** | **131** |

Source: Authors' calculation

The students who lived in mess had on average lowest CGPA in B.S.S. and M.S.S. exams. The students who lived in their own house and the house of their relatives had better CGPA than others of their batch. Their average CGPA of B.S.S and M.S.S. examination are 3.33 and 3.38 respectively.

One of our results shows that the students with CGPA 3.75 and above in both B.S.S. and M.S.S. examinations have managed a job immediately.

**Table 8: Employment Status according to residence**

| | Batch of 2011 | | Batch of 2013 | | Pooled Observations | |
|---|---|---|---|---|---|---|
| **Resident Information** | **Employed** | **Unemployed** | **Employed** | **Unemployed** | **Employed** | **Unemployed** |
| Hall (%) | 87.50 | 12.50 | 30.00 | 70.00 | 65.38 | 34.62 |
| Own House (%) | 93.33 | 6.67 | 81.00 | 19.00 | 85.71 | 14.29 |
| Rented House (%) | 96.67 | 3.33 | 74.00 | 26.00 | 83.05 | 16.95 |
| Mess (%) | 75.00 | 25.00 | 0.00 | 100.00 | 42.86 | 57.14 |
| Govt. Quarters (%) | 100.00 | 0.00 | 34.00 | 66.00 | 66.67 | 33.33 |
| Others (%) | 75.00 | 25.00 | - | - | 75.00 | 25.00 |
| **Over all (%)** | **91.67** | **8.33** | **64.1** | **35.9** | **77.37** | **22.63** |

Source: Authors' calculation

Table 8 presents the employment scenario separately for batches of 2011 and 2013 as well as pooled. For the batch of 2011, though the students living in Government Quarters had lower CGPA than other resident groups, all of them have managed to get a job. Findings show that better job getters live in own house, in rented house and in government quarters. Students living in mess and hall are relatively laggard in terms of getting jobs compared to their counterparts.

For the batch of 2013, students who lived in mess had on average lowest CGPA in B.S.S. and M.S.S. exams. The students who lived in their own house ended up with better CGPA than other residential status counterpart of their batch. Their average CGPA was 3.4 in both B.S.S. and M.S.S. exam. So, this implies that the students who lived in their own house have managed to perform consistently in the exam. The students living in rented house had higher CGPA than the students living in the residential halls of the university.

**Table 9: Employment Scenario according to B.S.S and M.S.S. results**

| | CGPA>=3.00 in both BSS & MSS | CGPA>=3.25 in both BSS & MSS | CGPA>=3.50in both BSS & MSS | CGPA>=3.75 in both BSS & MSS |
|---|---|---|---|---|
| Employed (%) | 77.88 | 88.41 | 94.12 | 100.00 |
| Unemployed (%) | 22.12 | 11.59 | 5.88 | 0.00 |

Source: Authors' calculation

This table shows that CGPA is a better signal in case of getting a job. Academic achievement is also an important factor associated with employment success (Naylor, 2002; Smith, 2000). Employers use the grade as credible signal to offer jobs for the better-performed students (Spence, 1973). The more is the grade, the better is the chance of the graduate to be employed. Our sample shows that all of the graduate having CGPA higher than 3.75 are employed. Even for the students having CGPA higher than 3.00 and 3.25 the probability of being unemployed is lower than the graduates having CGPA lower than 3.00.Our results suggest that if a student completes his or her degree with CGPA of 3.50 or above, approximately 95 per cent of them manage a job within a very short period of time. Even for the students having CGPA higher than

3.00 and 3.25 the probability of being unemployed is lower than the graduates having CGPA lower than 3.00.

### *4.6 Probit Results and Discussion*

**Table 10: Probit Regression Results**

| Dependent Variable: Probability of Employment | | | | |
|---|---|---|---|---|
| **Explanatory Variables** | **Description of Variables** | **Regression 1 Coefficients (Robust S.E.)** | **Regression 2 Coefficients (Robust S.E.) Excluding BSS** | **Regression 3 Coefficients (Robust S.E.) Excluding MSS** |
| Constant | - | -3.85** (1.97) | -4.47 ***(1.68) | -2.27 (1.47) |
| Residence | Residence=1 if a student resides in Hall, 0 otherwise | -0.35 (0.40) | -0.34 (0.40) | -0.38 (0.37) |
| Gender | Gender=1 if a student is female | -0.95** (0.41) | -0.93** (0.40) | -0.79** (0.39) |
| H.S.C Background | H.S.C. background=1 if the HSC background of a student is science, 0 otherwise | -0.59 (0.47) | -0.61 (0.49) | -0.49 (0.45) |
| B.S.S. Result | Result of Bachelor of Social Sciences out of 4.00 | -0.82 (0.84) | | 0.91** (0.43) |
| M.S.S. Result | Result of Master of Social Sciences out of 4.00 | 2.09*** (0.83) | 1.48*** (0.47) | |
| Family Income | Total household income | 0.00* (0.00) | 0.00*(0.00) | 0.00* (0.00) |
| Father's Education | Father's total years of schooling completed | -0.03 (0.06) | -0.04 (0.06) | -0.04(0.05) |
| Mother's Education | Mother's total years of schooling completed | 0.10* (0.06) | 0.10*(0.06) | 0.07(0.05) |
| Study Hour | Study hours per day during student life in university | -0.03 (0.07) | -0.04 (0.07) | -0.07 (0.06) |
| H.S.C. Background*Gender | Interacted Variable between Science background and Gender | 0.81 (0.77) | 0.73(0.86) | 0.77(0.764) |

Note: ***, **, * indicate statistical significance at the 1%, 5% and 10% level respectively. Robust standard errors are shown in parentheses.

Our regression results suggest that academic result (precisely M.S.S. result), gender, family income and mother's education are the most significant factors those contribute to the odds ratio in favor of employment of a graduate of the department. CGPA of M.S.S. result is the single most influential factor that enhances the odds ratio in favor of being employed of these graduates with statistically significant at 1% level as shown in regression 1 and 2. We have run regression 3 without M.S.S. result. In this case the coefficient of B.S.S. result is significant implies that a graduate having B.S.S. degree with higher grade also have greater odds ratio in support of getting a job than their counterpart.

If a graduate is female, the odds of being employed is lower than their counterpart as shown by the negative coefficient of the gender. Similar results are found in pleathora of studies across the society as well as various countries of the world (Livanos, 2009; Altonji, 1999). Both Family

income and mother education have positive association with employability of a graduate and the results are also significant. Educated mothers are able to teach mathmatics and english to their kids during school years which are considered to be the two important skills in job market. Henceforth, the pobability of employment of these kids are higher in later years than others if we disregard exception. Sometimes it is being said that education is for all but quality education is only for few. Infact, quality education is expensive in many developing country and only the rich can afford it. Therefore, the students from well-off families can afford quality education and end up with better training and skill. Therefore, the chance of their employment is higher than others when they enter into the job market.

The graduates who dwelled in hall during their student life have lower probability of being employed. Though the result is not statistically significant, implications indicate halls fail to provide sound academic environment for the students. One contradiction arises when we found negative relationship between B.S.S. result and odds of employment as shown in regression. We suspect this can be due to multicollinearity between B.S.S. and M.S.S. result.This contradiction has been reconciled by introducing regression 3 where we dropped M.S.S. result and the sign of B.S.S. coefficient becomes consistent.

Parent time and education have positive impact on childern's educational attainment as well as engagement in better economic opportunities (Sayer, 2004) Therefore, we expect a positive relationship between father education and a students' probability of employment. But the sign of the coefficient of father education is unexpected and it is not statistically siginificant. We have also found unexpected sign in the coefficient of study hour.

We have introduced an interaction dummy between gender and H.S.C. background to see what is the simultaneous impact of both gender and H.S.C. background. The positive interaction dummy implies that there if a student is female and from science background she has much higher probability of being employed than a student from any other category.

### *4.7 Estimating Marginal Effect*

**Table 11: Estimating Marginal Effect**

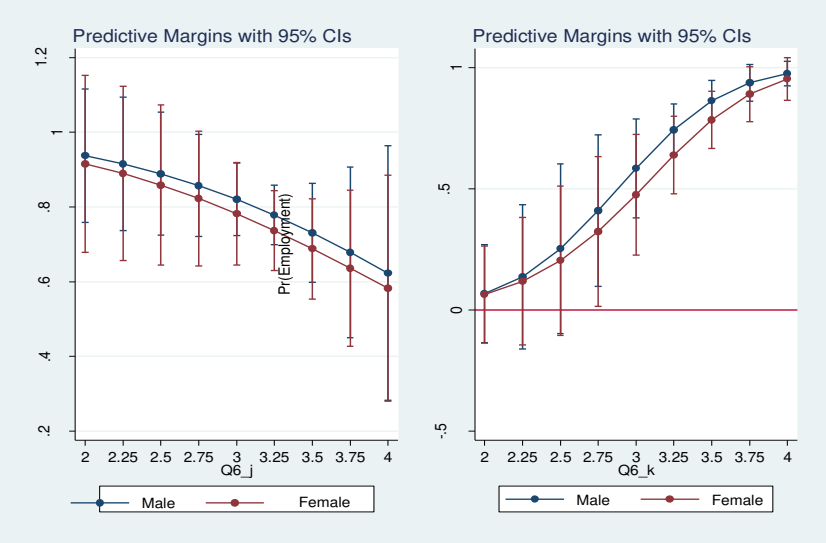
| Explanatory Variables | Mean | Marginal effect at Means |
|---|---|---|
| Residence | 0.20 | -0.09 (0.10) |
| Gender | 0.37 | -0.24** (0.10) |
| H.S.C. Background | 0.36 | -0.15 (0.12) |
| B.S.S. Result | 3.34 | -0.20 (0.21) |
| M.S.S. Result | 3.39 | 0.52*** (0.20) |
| Family Income | 44334.75 | 0.00** (0.00) |
| Father's Education | 13.90 | -0.01 (0.01) |
| Mother's Education | 11.10 | 0.02* (0.01) |
| Study Hour | 3.50 | -0.01 (0.02) |
| Science Background*Gender | 0.12 | 0.20 (0.19) |

Note: Delta Method Standrad Error is shown in parentheses. ***, **, * indicate statistical significance at the 1%, 5% and 10% level respectively.

The marginal effects of being resided in hall, gender female and H.S.C. from science background negatively affect the probability of employment. Among these factors, only the marginal effect of gender is statistically significant. As stated earlier, overcrowding in the residential hall, involvement in student politics to secure a sit in the halls, scarcity of space in the hall library as well as university library etc. generate poor academic environment and hence waste their effective study hours (Saha, et al., 2017). These factors can explain the negative impact of hall on the probability of employment. Once again in the current socio-economic reality, females are placed to do mainly look after their kids and in household activities (Mahmud and Bidisha, 2018; Raihan and Bidisha, 2018: Cain, et al., 1979). So being a female the probability of being employed decreases even though she completes her graduation from a reputed institution.

If a student having H.S.C. Background from science and completes his or her undergraduate degree from economics have negative marginal effect on the probability of employment. This is unexpected and not statistically significant. So we can ignore it.

Figure 1: Marginal Effect of B.S.S and M.S.S. CGPA on the Probability of Employment




M.S.S. result has very strong positive marginal effect on the probability of employment. However the effect increases at decreasing rate. This non-linear relationship is shown in the above figure.

Other than these, marginal effects of family income and mother education are positive and statistically significant. Marginal effects of father's education and study hour are negative which is unexpected. Since these coefficients are statistically insignificant, therefore we cannot draw this conclusion from the sample.

Though the marginal effects of science and gender are negative but the interacted marginal effect of these two-discrete variable are positive. This implies that if a student is female and she is from science then the marginal effect of this interaction is positive on the probability of employment.

## 5. Conclusion

The study tries to find out the socio-economic factors that influence the probability of employment of the graduates of Economics Department, Dhaka University. To aid the objective, the present study wields the probit model for cross section survey data. The probit model has been used because of its some advantages over the linear dependent model (LPM) model and the logit model explained in the methodology part. According to the estimated probit results, the most important determinants of employment of these graduates are gender, M.S.S. results, family income and mother education. On the other hand, though B.S.S. results, residential status attained the expected signs, these are not statistically significant. The probit regression results show that the higher the M.S.S. result the greater the probability of getting job. This is in fact true in the context of Bangladesh that most of the white color jobs require M.S.S. degree in the entry level. It implies that the M.S.S. degree from the Economics Department, Dhaka University provides strong signaling of their graduates in the job market.

The coefficient of gender dummy is significant and negative implying the lower probability of employment of  in the job market compared to their male counterpart. Therefore, a female student in spite of having similar qualifications like their male counterparts that are required by job market has less probability to be employed in the job market. Socio-economic factors might be responsible for their low participation in the job market. It implies that gender discrimination still exists in the job market of Bangladesh. Mother education plays very significant role in their children job market placement. On the other hand, father education does not play significant role to their children employment. This may be the result of the fact that mothers take care of their kids' education along with household chores. Finally, residing of a student in hall struggling with accommodation crisis and overcrowded environment (Saha, et al., 2017) reduces the probability of employment of the graduates living there. It implies that residential dormitories of Dhaka University have failed to provide sound academic environment to the students.

The study has some recommendations to the policymakers. First, since a larger and significant portion of the students are residing in the university dormitories, residential amenities of the dormitories must be improved. Therefore, it will ensure the academic and intellectual environment of the students as well as it will ensure better job for the students. Second, male and female graduates should be treated equally in the job market. To reduce the discrimination between male and female graduates in the job market, employer should set some mechanism to recruit them. Third, employer should relax the minimum requirement to job entry specifically B.S.S./B.S.C/BA/BBA students should be considered as potential job entrants except the specialized jobs. As a result, society can save some of its scarce resources for the other productive purposes.

The main limitation of this study is the sample size of data. The study could provide better result and more accurate result if we could include more batches of the graduates of Economics Department, Dhaka University to increase the sample size of our study. This might surely generate the scope for further study. The final recommendation is that this study can be extended to the other departments of Dhaka University to assess the performance and placement the graduates of the university.

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**Appendices:**

**A.1a: H.S.C. Background of Economics Graduates**

| Group | Batch of 2011 | Batch of 2013 | Pooled Observations (139) |
|---|---|---|---|
| Science | 19.72% | 51.47% | 35.25% |
| Humanities | 71.83% | 38.24% | 55.40% |
| Commerce | 8.45% | 10.29% | 9.35% |

Source: Authors' calculation

**A.1b: Average GPA of Economics graduates of Dhaka University in terms of gender and background**

| Batch of 2011 | | SSC (Out of 5) | HSC (Out of 5) | BSS (Out of 4) | MSS (Out of 4) |
|---|---|---|---|---|---|
| | | | ***Male*** | | |
| | Science | 4.65 | 4.43 | 3.24 | 3.38 |
| | Humanities | 4.43 | 4.69 | 3.25 | 3.37 |
| | Commerce | 4.46 | 4.73 | 3.24 | 3.29 |
| | | | **Female** | | |
| | Science | 4.86 | 4.85 | 3.48 | 3.56 |
| | Humanities | 4.50 | 4.81 | 3.28 | 3.42 |
| | Commerce | 3.75 | 3.7 | 3.46 | 3.44 |
| Batch of 2013 | | | **Male** | | |
| | Science | 4.96 | 4.83 | 3.36 | 3.34 |
| | Humanities | 4.78 | 4.94 | 3.36 | 3.38 |
| | Commerce | 4.53 | 4.85 | 3.34 | 3.28 |
| | | | **Female** | | |
| | Science | 4.99 | 4.95 | 3.56 | 3.53 |
| | Humanities | 4.88 | 4.93 | 3.25 | 3.30 |
| | Commerce | 5 | 5 | 3.26 | 3.21 |

Source: Authors' calculation

**A.2: Distribution of students in terms of College location**

| Location | First Batch | Third Batch |
|---|---|---|
| Dhaka | 50.00% | 66.18% |
| Chittagong | 6.94% | 4.41% |
| Others | 43.06% | 29.41% |

Source: Authors' calculation